

Remarks

This application is a U.S. National Stage entry of International Application No. PCT/US00/16324, filed July 12, 2000, which claims priority to European Application No. 99202376.2, filed July 16, 1999. Claims 9-57 are pending in this application prior to entry of this Amendment.

Claims 9-18 and 57 have been allowed. Claims 20-22, 32, 33, 41, 42, 50, and 51 have been objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form. Claims 19, 24-31, 35-39, 49, and 53-56 are rejected under 35 U.S.C. 103(a) as being obvious over GB 979,779 ("Schneble et al.") in view of U.S. Patent No. 5,139,818 ("Mance"). Claims 23, 34, 40, 43-48, and 52 are rejected under 35 U.S.C. 103(a) as being obvious over Schneble et al. in view of Mance and U.S. Patent No. 4,601,783 ("Krulik").

Claims 26-28 and 40 are amended. No new material is being added by this amendment. Support for amended claims 26-28 may be found in the international Specification, for example, at page 4, lines 8-12 and at the table on page 7. To expedite the allowance of the remaining claims, claims 16, 19-25, 29-39, and 49-56 are cancelled without prejudice to their patentability. Applicants expressly reserve the right to file these claims in a continuing application. Claims 9-15, 17, 18, 26-28, 40-48, and 57 will be pending in this application after entry of this Amendment.

A. Rejection of claims 26-28

Reconsideration of the rejection of claims 26-28 is requested. As amended, claims 26-28 depend from allowed claim 9. Amended claims 26-28 are therefore patentable.

B. Rejection of claims 40 and 43-48

Reconsideration is requested for the rejection of claims 40 and 43-48 under 35 U.S.C. 103(a) as being obvious over Schneble et al. in view of Mance and Krulik. As amended, independent claim 40 is directed to a process for electroless plating of a shaped plastic body. Among other steps, a shaped body is formed from compounded plastic and a plating reaction catalyst, part of the catalyst is exposed by removal of surface material from the shaped body with an alkaline solution, and the catalyst is activated with an acid solution. According to the international Specification, problems with other plating processes using catalytic fillers, e.g. slow plating initiation, can be overcome by exposing the catalyst particles with an alkaline solution and activating the exposed particles with an acid solution.

In contrast, Schneble et al. disclose a process for the electroless deposition of metal on an object which has bare copper at a surface of the object. According to Schneble et al., the copper is formed at the surface by adhering copper oxide to the surface of the object and then reacting the copper oxide with an acid to form copper metal. Schneble et al., however, fail to disclose or suggest a **catalyst** suitable for an electroplating reaction as described in amended claim 40, and Schneble et al. certainly fail to disclose or suggest compounding plastic with such a **catalyst** or activating an exposed **catalyst** with an acid treatment. Although Schneble et al. disclose mixing plastic with copper oxide and treating copper oxide with acid, **Schneble et al fail to disclose or suggest using copper oxide as a metal deposition catalyst.** To the contrary, Schneble et al disclose the consumption of copper oxide to form copper metal at the surface of the object. Accordingly, copper oxide is not a catalyst for metal deposition, but rather a reactant which is reacted to become a metal. Thus, Schneble et al fail to disclose or suggest a catalyst as described in the process of amended claim 40. Furthermore, as noted by the Office, Schneble et al. fail to disclose or suggest the use of an alkaline solution to remove material from a surface of the shaped body

described by amended claim 40.

The Mance reference is similar to the Schneble et al. reference, being directed to a process for forming bare metal at the surface of an object prior to the electroless deposition of metal. Mance discloses the process steps of depositing a film of a metallo-organic compound on the surface of a substrate, thermally pyrolyzing the compound to decompose the compound into regions of metal, and electrolessly plating the substrate using **the formed metal as a catalyst**. The metallo-organic compound is also not a catalyst, but rather a reactant to form a metal at the surface of the substrate prior to an electroless deposition process. The Office notes that Mance also fails to disclose or suggest the use of an alkaline solution to remove material from a surface of the shaped body described by amended claim 40. Thus, Mance fails to remedy the deficiencies of Schneble et al.

While the Krulik reference discloses a resin etch by sodium hydroxide, Krulik also fails to disclose or suggest compounding plastic with a catalyst suitable for electroless deposition or activating an exposed catalyst with an acid treatment. Thus, the cited references, alone or in combination, fail to disclose or suggest the steps described by amended claim 40 with regard compounding a catalyst with plastic or activating a catalyst with acid. Amended claim 40 is therefore patentable over Schneble et al. in view of Mance and Krulik.

Amended claim 40 is also patentable over the cited references because the use of an alkaline solution followed by an acid solution as described by amended claim 40 leads to surprising results regarding the initiation time of an electroless deposition process on a shaped having a catalytic filler. Regardless of the initiation times reported by Mance, Mance does not disclose or suggest a catalytic filler nor acid activation of a catalyst. Mance certainly does not suggest that initiation times may be improved by the combination of alkaline and acid treatments described by amended claim 40. Schneble et al. also do not disclose or suggest any alkaline treatment and certainly fail to suggest

that initiation times may be improved by the combination of alkaline and acid treatments described by amended claim 40. Krulik is not even directed to electroless plating processes. The international Specification, however, teaches the surprising improvement in initiation time by the combination of alkaline and acid treatments described in amended claim 40, for example at page 3, lines 11-16 and 24-28, at page 4, lines 11-15, and at the table on page 7.

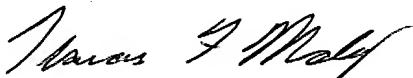
Claims 43-48 depend from amended claim 40 and are therefore patentable for the reasons given above for amended claim 40. Claims 41 and 42, which were objected to, also depend from amended claim 40 and are therefore patentable for the reasons given above for amended claim 40.

CONCLUSION

In view of the foregoing, Applicants respectfully submit that claims 9-15, 17, 18, 26-28, 40-48, and 57, which are now pending in this application, satisfy the requirements for patentability. Favorable reconsideration and allowance of these claims are therefore respectfully requested.

\* Applicants enclose a check for \$110.00 to cover the fee for a one-month extension of time. The Examiner is authorized to charge any underpayment or to credit any overpayment of the above referenced fees to Deposit Account No. 19-1345.

Respectfully submitted,



Thomas F. Maloney, Reg. No. 50,156  
Senniger, Powers, Leavitt & Roedel  
One Metropolitan Square, 16th Floor  
St. Louis, Missouri 63102  
(314) 231-5400

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